Sustainable Landscape Professionals Certification Workshop

February 07, 2012

Ronda Headland, Community Conservation Planner, Missouri Dept. of Conservation

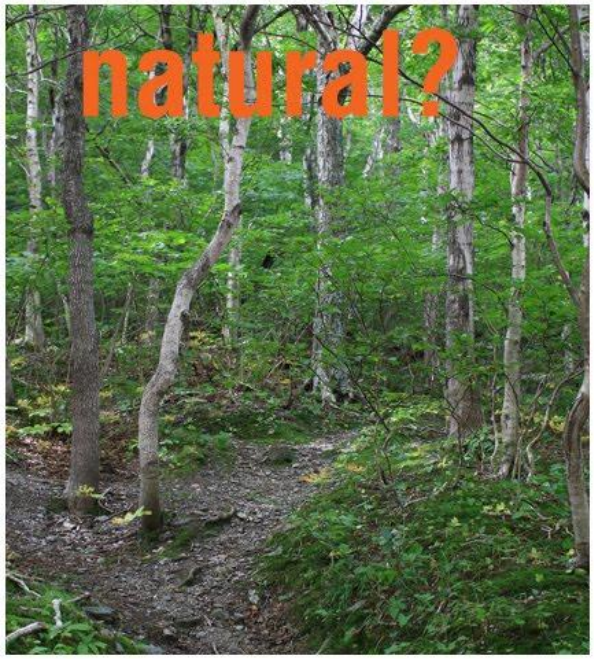
Paul Armstrong, Smiling Sun Native & Organic Garden Center

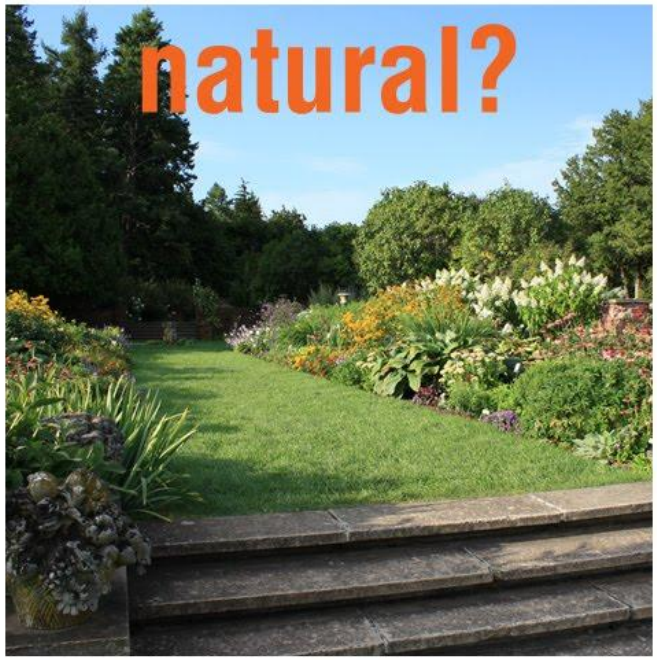
- **Native Plant Nurseries (abridged list)**
  1. Forrest Keeling Nursery; http://www.fknursery.com/ (including native plants for slopes and erosion control)
  2. George O. White State Forest Nursery; http://mdc.mo.gov/landwater-care/landowners-and-farmers/seedling-orders/2011-2012-seedling-order-form
  3. Hamilton Native Outpost; http://www.hamiltonseed.com/
  4. JF New; http://www.cardnojfnew.com/
  5. Missouri Wildflowers Nursery; http://www.mowildflowers.net/
  6. Prairie Moon Nursery; http://www.prairiemoon.com/
  7. Prairie & Wetland Center – Critsite Products; http://www.critsite.com/
  8. Shine Hollow Ranch; http://www.shinehollowranch.com/
  9. Smiling Sun Native & Organic Garden Center; https://www.smilingsunllc.com/
- **Missouri Botanical Garden – Shaw Nature Reserve**
  - MSD Stormwater Best Management Practices Manual; http://www.missouribotanicalgarden.org/visit/family-of-attractions/shaw-nature-reserve/gardens-gardening-at-shaw-nature-reserve/native-landscaping-for-professionals/stormwater-solutions.aspx
  - Native Landscaping Manual (including native plant groundcovers); http://www.missouribotanicalgarden.org/visit/family-of-attractions/shaw-nature-reserve/gardens-gardening-at-shaw-nature-reserve/native-landscaping-for-the-home-gardener/native-landscaping-manual.aspx
  - Plants of Merit; http://www.missouribotanicalgarden.org/gardens-gardening/gardening-in-br-st.-louis/plants-of-merit.aspx
- City of Springfield, Department of Public Works, Division of Storm Water Services; ***Create a Rain Garden*** Brochure; http://www.springfieldmo.gov/stormwater/raingarden.html
- County of St. Louis, Property & Roads, Subdivision Trustee Resource Center; ***Native Landscaping: A Subdivision Association Guide for Converting Turf to Prairie***; http://www.co.st-louis.mo.us/PropertyandRoads/SubdivisionTrusteeResourceCenter.aspx
- Grow Native! http://www.grownative.org/
- Kurz, Don. ***Trees of Missouri***. Jefferson City: Conservation Commission of Missouri, 2003.
- Kurz, Don. ***Shrubs and Woody Vines of Missouri***. 2nd ed. Jefferson City: Conservation Commission of Missouri, 2004.
- Shaw, Daniel and Rusty Schmidt. ***Plants for Stormwater Design – Species Selection for the Upper Midwest***. Saint Paul: Minnesota Pollution Control Agency, 2003. http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/stormwater-management/plants-for-stormwater-design.html?menuid=&redirect=1

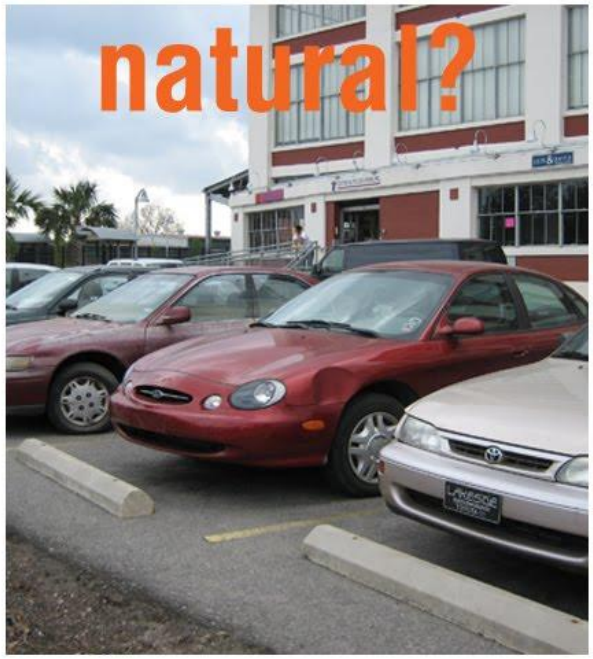
NATIVE PLANTS & THE WILD LOOK

http://landscapeofmeaning.blogspot.com/

Courtesy of Headland Landscape Architecture







http://landscapeofmeaning.blogspot.com/

…Natives vs. Exotics

http://www.britannica.com/EBchecked/media/54572/The-blue-areas-are-those-that-were-covered-by-ice

http://www.carnegiemnh.org/ip/tours/trail/red/4.htm

Trees of Missouri

DESCRIPTIONS ❀ DETAILED ILLUSTRATIONS ❀ USES IN LANDSCAPING

by Don Kurz

Shrubs and Woody Vines of Missouri

DESCRIPTIONS ❀ DETAILED ILLUSTRATIONS ❀ USES IN LANDSCAPING

by Don Kurz

Second Edition

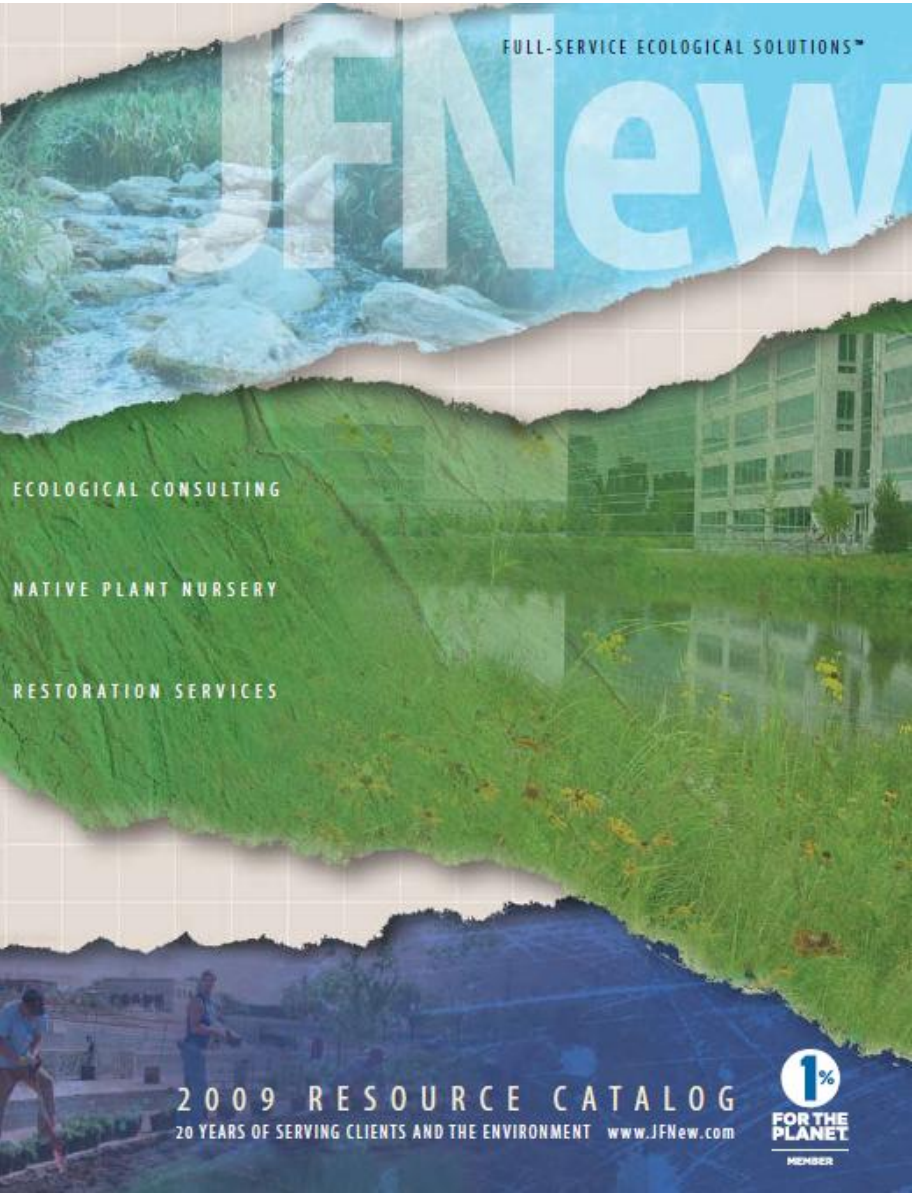
Missouri Department of Conservation

SHAW NATURE RESERVE

a division of the  MISSOURI BOTANICAL GARDEN

Scientific name	Common Name	Habitat	Life cycle	Height	Width/Spacing	Light tolerance	General soil moisture	Aggressiveness	Gardening notes	Flower Color and Bloom Time	Seed/spore extraction	Seeds per ounce	Propagation method	Propagation notes	Wildlife attracted
Acer rubrum	Red maple	Woodland	Tree	40-50'	30-40'	Shade				April	N	800	R, SO, SC		food (flies,bees), seeds (many birds, squirrels, chipmunks, other small mammals)
Acer saccharum	Sugar maple	Woodland	Tree			Shade				April	N	110	R, SO, SC		g cover, larval food (cecropia, imperial moths), insect food, seeds (songbirds, squirells, small rodents), bird nesting cavities, deer browse, sap from sapsuc food for hummingbirds before flowers
Achillea millefolium	Yarrow	Prairies	Perennial	3'	1'	Sun-pt shade	Dry-avg	Reseeds	Spreads from seed	May-July	H	70,900	C, SD		butterflies
Actaea pachypoda	Dolls eyes	Rich woodland	Perennial	2'		Shade		Spreads from spores	Spreads from spores	May-June	M		D, M, SO, SC		
Adiantum pedatum	Maidenhair fern	Woodland	Fern	2'		Shade	Wet-avg	Clumping	Medium clumping fern				Spores or division		
Aesculus glabra	Ohio buckeye	Woodland	Tree	30-40'	20-30'	Sun to shade	Wet-avg		Yellow flowers in early spring attract spring butterflies	April-May	H		R, SO, SC		hummingbirdnectar , many butterfly/mo nectar (bmm)
Aesculus pavia	Red buckeye	Woodland	Tree	10-15'		Sun to shade	Wet-avg		shaped flowers attract hummingbirds	April-May	H		R, SO, SC		g cover, hummingbird nectar

http://www.shawnature.org/lily.aspx



APPROX. SEEDS/OZ.	HEIGHT	BLOOM COLOR	BLOOM TIME	SOIL MOISTURE	FULL SUN	PARTIAL SUN	SHADE	SALT TOLERANT	DEER RESISTANT
33,422	1′-2′	Green	May-Jun	Dry	x				x
27,500	1′-2′	Green	May-Jun	Dry	x				x
41,183	2′-3′	Green	May-Jun	Wet	x	x			
141,750	2′-5′	Green	May	Wet	x	x	x		
59,000	2′-3′	Green	May-Jun	Wet	x	x			x
13,125	2′-3′	Green	Jun	Wet	x	x	x		
9,000	2′-3′	Green	May	Medium		x	x		
140,625	2′-3′	Green	May	Wet	x	x			
31,250	1′-2′	Green	Jun-Jul	Wet	x	x	x		x
15,500	1′-2′	Green	May-Jun	Wet	x	x	x		
1,200	1′-2′	Green	May-Jun	Wet		x	x		
	1′-3′	Green	May	Wet	x	x			
36,000	2′-3′	Green	May-Jun	Wet	x	x	x		
38,000	1′-3′	Green	May	Wet	x	x			
26,000	2′-4′	Green	May-Jun	Wet	x	x	x		
3,635	2′-3′	Green	May-Jun	Wet	x	x	x		x
12,000	2′-3′	Green	May-Jun	Wet	x	x	x		x
11,875	1′-3′	Green	May-Jun	Dry	x	x	x		
81,250	1′-2′	Green	May-Jun	Wet			x		
25,000	1′-3′	Green	May-Jun	Medium		x	x		
29,000	6″-1′	Green	Apr-May	Dry	x	x	x		
84,375	1′-4′	Green	May	Wet	x	x			
131,094	1′-3′	Green	Jun-Jul	Wet	x	x	x		
41,390	1′-2′	Green	Jun-Jul	Medium		x	x		
53,125	1′	Green	Apr-Jun	Medium		x	x		
83,250	2′-3′	Green	May-Jun	Medium	x	x			
15,500	1′-3′	Green	May-Jun	Medium		x	x		
25,111	1′-2′	Green	May-Jun	Wet	x	x			
35,625	1′-3′	Green	Apr-May	Wet	x	x	x		x

Required plants for MSD stormwater best management practices: Dry Swale; Sand Filter; Wet Pond; Wetland; Bioretention for Informal landscapes; Bioretention for Formal landscapes

Infiltration Basins and Dry Swales

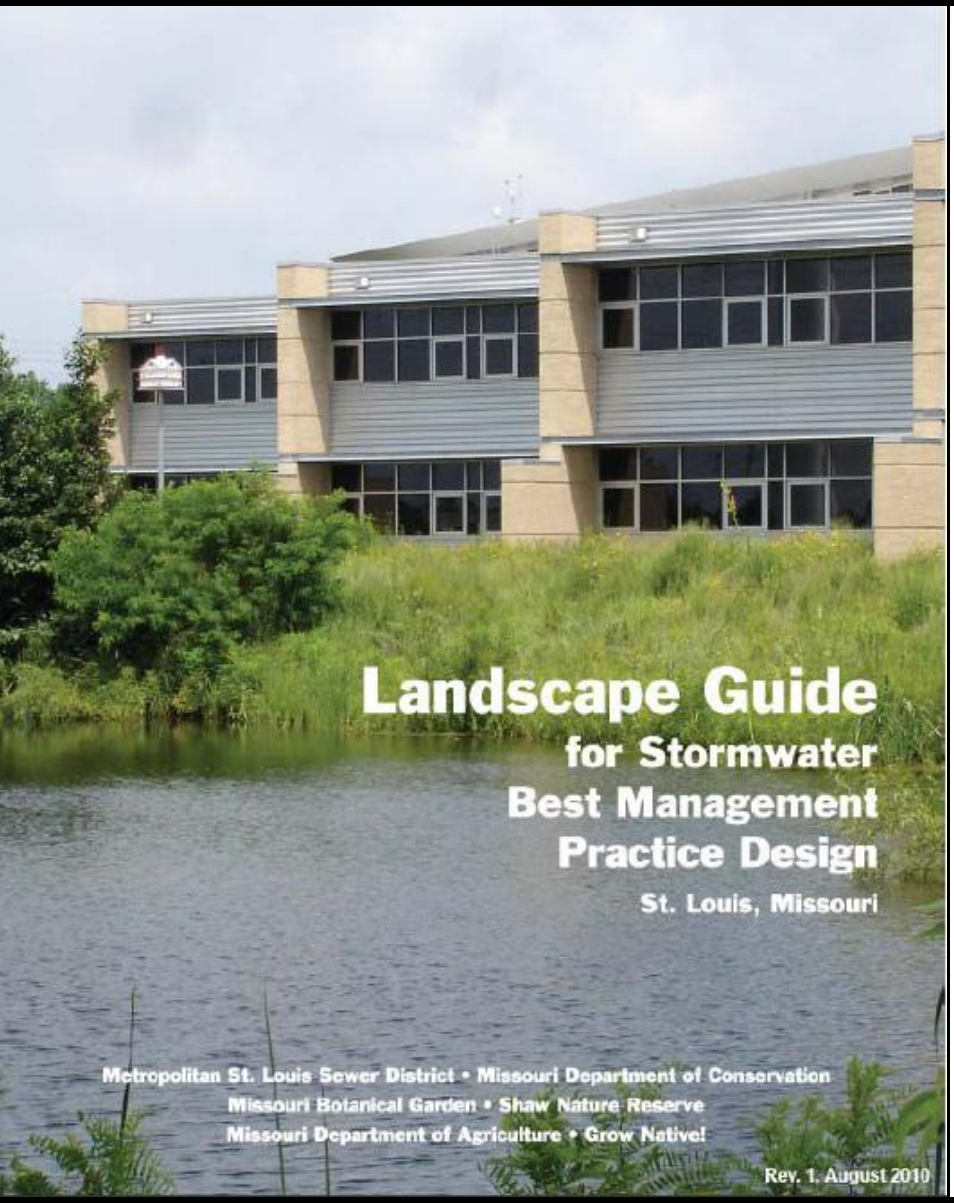
Latin Name	Common Name	Submerged & Emergent (water depth)	Pond Edge & Permanent Water	Over sand	Lower slopes & bioretention base	Upper slopes	Height (feet)	Spacing (feet)	Seasonal Interest - Color and Months	Sun	Pt Sun	Pt Shade	Shade	Dry	Medium	Wet	Birds	Butterflies	Fall Color	Winter Interest	Flood frequency tolerance	Flood height tolerance	Flood duration tolerance (days)	Salt tolerance	Aggressiveness	Silt tolerance
Grasses/Sedges									J F M A M J J A S O N D																	
Andropogon virginicus	Broomsedge			x		x	1-2	1.5	orange					x			x		x	L		1		M	L
Bouteloua curtipendula	Sideoats grama			x		x	1-2	1	tan	x				x	x		x			x	L		1		L	L
Carex muskingumensis	Palm sedge		x	x	x		1-2	1.5	tan	x	x	x	x	x	x	x	x				H	24	3+		M	H
Carex praegracilis*	Tollway sedge		x		x	x	1-2	2	tan	x	x			x	x	x	x				H	12	2	H	H	H
Carex vulpinoidea	Fox sedge		x		x		2-3	1.5	tan	x	x	x			x	x					H	24	3+	L	L	H
Panicum virgatum	Switchgrass			x	x	x	3-6'	2.5'	pink	x	x	x			x	x	x		x		M	12	2	M	M	M
Schizachyrium scoparium	Little bluestem			x		x	2-4	1.5	bronze	x				x	x		x		x	x	L	12	1	M	L	L
Sporobolus heterolepis	Prairie dropseed				x	x	2-3	1.5	tan	x				x	x		x			x	L				L	
Forbs																										
Asclepias tuberosa	Butterfly milkweed			x		x	1-2	1.5	orange	x				x	x			x			L			V	M	
Baptisia australis	Blue wild indigo						3-4	3-4	blue	x	x	x		x	x			x			L				M	
Blephilia ciliata	Ohio horsemint					x	1-2	1.5	pink		x	x	x	x	x			x		x	L					
Coreopsis lanceolata	Lanceleaf coreopsis			x		x	1-2	1.5	yellow	x	x			x	x			x			L		1		L	
Echinacea purpurea	Purple coneflower				x	x	2-3	1.5	t. purple		x	x	x	x	x		x	x			L				L	
Eryngium yuccifolium	Rattlesnake master				x	x	4-5	1.5	green	x				x	x			x		x	M	12	2	M	L	
Pycnanthemum tenuifolium	Slender Mountain Mint			x	x	x	2-3	1.5	white	x	x	x		x	x						L		1		M	
Ratibida pinnata	Yellow/Grey coneflower			x	x	x	3-5	1.5	yellow	x				x	x		x	x			M	12	1	M	H	L
Rudbeckia subtomentosa	Sweet coneflower				x	x	3-4	2	yellow	x	x				x	x		x		x	H	12	2		M	
Scutellaria incana	Hoary skullcap				x		2-3	2	blue			x	x	x	x			x			L					L
Solidago rigida	Stiff goldenrod				x	x	3-5	1.5	yellow	x					x					x	L	12	2	M	H	L
Verbesina helianthoides	Yellow wingstem			x	x	x	2-3	1.5	yellow	x	x	x		x	x		x	x							M	
Zizia aurea	Golden alexander					x	1-3	1.5	yellow	x	x	x			x			x			H	12	1	M	H	U
Trees/Shrubs																										
Cornus florida	Flowering dogwood			x	x	x	10-20	15	white		x	x	x	x	x		x		x	x	L			L	L	L
Diospyos virginiana	Persimmon			x	x	x	30-40	20	orange	x	x	x		x	x		x		x	x	M	12	1		M	M
Ostrya virginiana	Hophornbeam				x	x	20-30	20	green		x	x	x	x	x						L				L	L
Quercus muhlenbergii	Chinquapin oak				x	x	40-50	35	green		x	x	x	x	x					x	L			H	L	L

Requirements

Local Ecotype Rule: Plants of Missouri or Southern Illinois ecotype are required.

Must use a minimum of 5 grass/sedge species and 8 forb species for each BMP.

Each species must consist of between 5% - 15% of the total plant count for each BMP.



STORMWATER
BEST MANAGEMENT PRACTICES
POST-CONSTRUCTION RECOMMENDATIONS

ADDRESSING LEGAL IMPEDIMENTS AND MANDATED IMPERVIOUS AREAS

The St. Louis County Phase II Storm Water BMP Implementation Work Group

February 2011

PLANTS

For Stormwater Design

Species Selection for the Upper Midwest

Daniel Shaw

Rusty Schmidt

Cardinal Flower
Lobelia cardinalis

Soft Rush
Juncus effusus

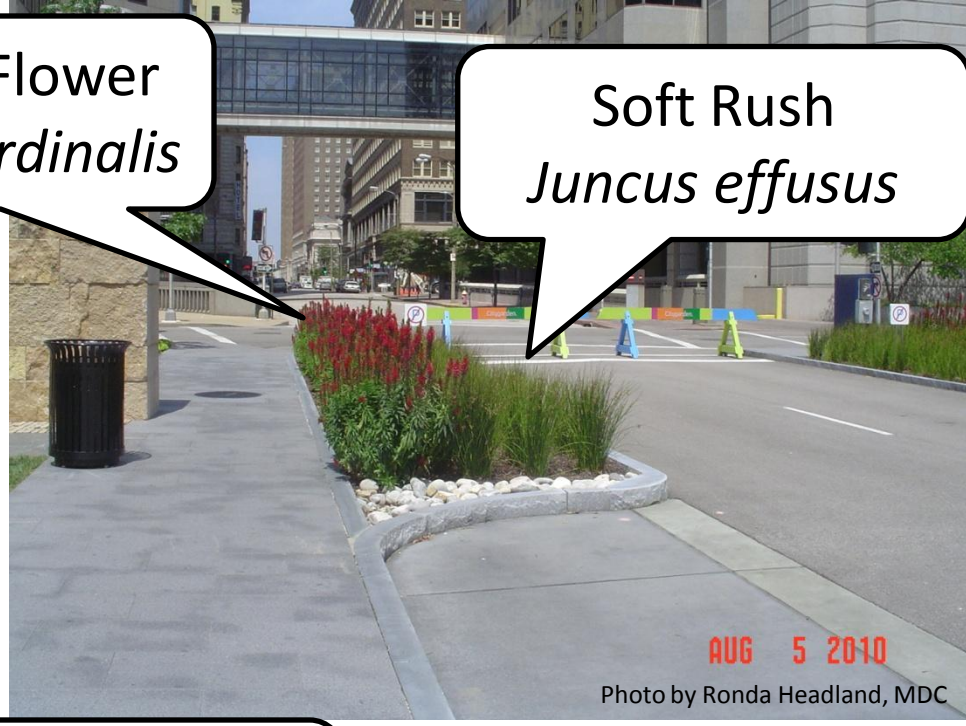


Photo by Ronda Headland, MDC

Switchgrass
Panicum virgatum

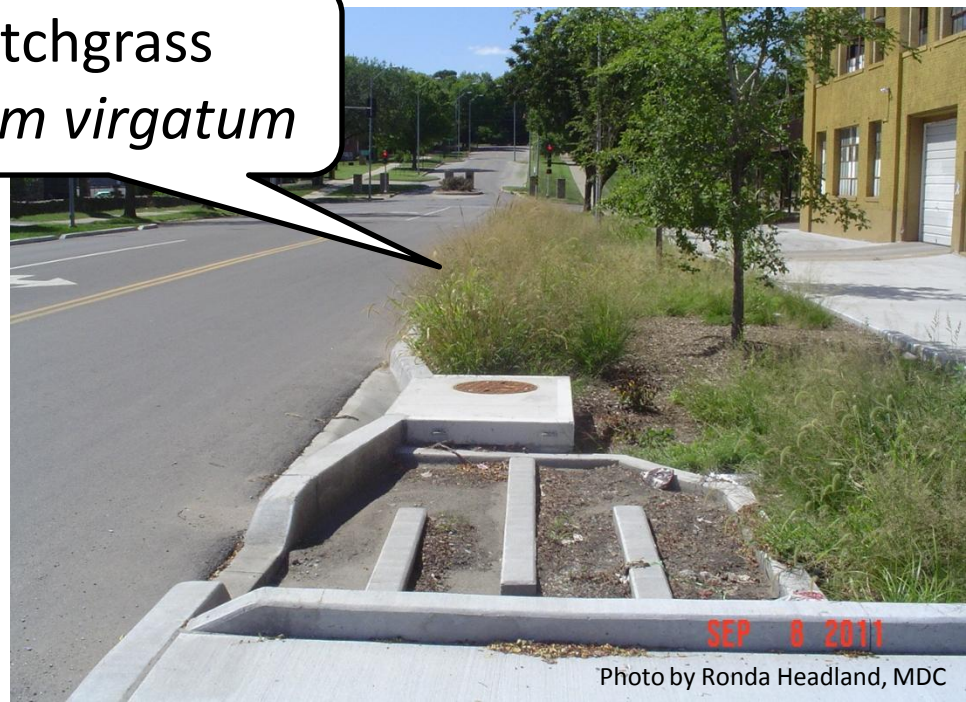


Photo by Ronda Headland, MDC

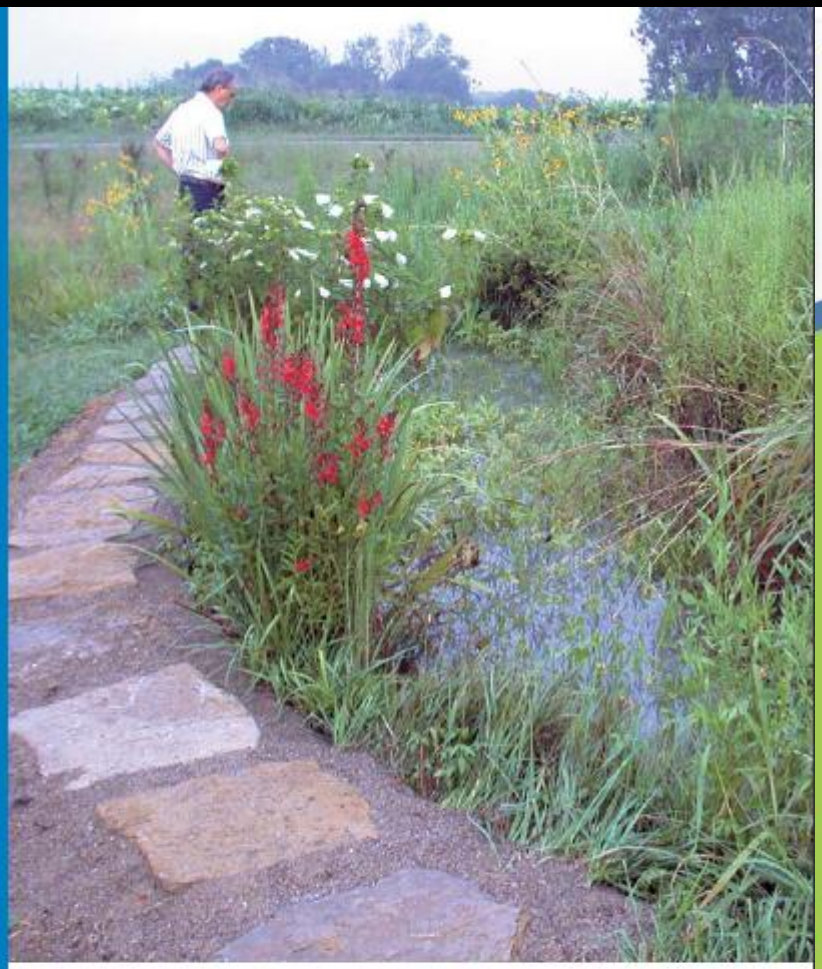

Lead Plant
Amorpha canescens
JUN 12 2007
Photo by Ronda Headland, MDC


Shining Blue Star
Amsonia illustris


JUN 21 2007
Photo by Ronda Headland, MDC


Lanceleaf Coreopsis
Coreopsis lanceolata
Photo by Tim Davis, Greene County

Photo by Ronda Headland, MDC



Chapter Two

Rain Gardening and Storm-water Management

A Landscaping Guide for Missouri

Create a

Rain Garden

Protect our water resources with a beautiful landscape

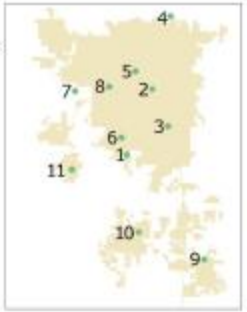
What Is a Rain Garden?

Rain gardens are shallow depressions filled with native plants designed to catch and absorb storm water runoff from roofs, streets, parking lots and other areas. Storm water runoff can negatively impact our waterways by increasing erosion and contributing harmful pollutants picked up from yards, streets, and parking lots. Rain gardens help reduce these negative impacts and recharge the groundwater aquifer by utilizing storm water runoff as a resource rather than channeling it to storm drains which lead directly to area creeks, rivers and lakes. Water that is caught in a rain garden either infiltrates into the ground, is taken up by plant roots, or evaporates into the air. Native plants are a good choice for rain gardens because they are adapted to our local growing conditions. They have massive root systems that keep soil from eroding, help water soak into the ground, and keep the plants alive during droughts. Native plants are also a vital component in our local web of life as they provide food and shelter to insects including pollinators.

Local Rain Garden Demonstration Projects:

For more information and photos: www.springfieldmo.gov/stormwater

1. Springfield-Greene County Library Center, 4653 S. Campbell Ave
2. Rountree Neighborhood, 1100 Block S. Weller Ave.
3. First Unitarian Universalist Church, 2434 E. Battlefield Rd.
4. Watershed Center, 2450 E. Valley Water Mill Rd.
5. Community Foundation of the Ozarks, 425 E. Trafficway St.
6. Horace Mann Elementary, 3745 S. Broadway Ave.
7. Rutledge-Wilson Community Farm Park, 3825 W. Farm Rd. 146
8. Cruse Dog Park, Grand and Kansas Expy.
9. Ozark 4-H Building, Finley River Park
10. Park Hill Subdivision, Nixa
11. Battlefield City Hall, 5434 S. Tower Drive



…Reconstruction vs. Restoration

Tall Sedge Meadow

CATALOG NO.	P - S - W	W-WM-M-DM-D
TSW	○ ◒ ●	◆ | | |

Moist conditions prevail in a sedge meadow. While any wet area also has periods of relative dryness to prolonged drought, the majestic wetland plants in this mix are suited to marshy conditions or a wet spot in your yard that holds moisture after a rain or stays wet for other reasons.

Seeding Rate: 8.81 lbs/acre, 171 seeds/sq ft

500 sq. ft.	$28.00	1/4 Acre	$392.00
1,000 sq. ft.	$46.00	1/2 Acre	$783.00
1/8 Acre	$196.00	1 Acre	$1,565.00

Wildflowers (54.46% by wt): Sweet Flag 3.09, Mad Plantain 0.77, Swamp Milkweed 4.63, New England Aster 1.24, Flat-Topped Aster 0.62, Tall Swamp Marigold 3.09, False Aster 0.93, Turtlehead 1.54, Joe Pye Weed 0.46, Sneezeweed 1.24, Hairy Rose Mallow 2.16, Southern Blue Flag 3.09, Prairie Blazing Star 7.72, Cardinal Flower 0.77, Great Blue Lobelia 1.55, Monkey Flower 0.31, Marsh Betony 0.77, Obedient Plant 1.54, Mountain Mint 0.77, Annual Buttercup 0.71, Common Arrowhead 0.77, Riddell's Goldenrod 0.62, Great Bur Reed 11.43, Blue Vervain 3.09, Common Ironweed 1.54

Grasses (45.54% by wt): Fringed Brome 20.99, Bristly Sedge 3.55, Fringed Sedge 7.72, Porcupine Sedge 3.09, Common Fox Sedge 3.09, Brown Fox Sedge 1.54, Reed Manna Grass 1.54, Dark-green Bulrush 0.62, Wool Grass 0.31, Great Bulrush 1.54, Cord Grass 1.54

Tallgrass Prairie

for WET MESIC Soils

CATALOG NO.	P - S - W	W-WM-M-DM-D
TWM	○ ◒ ●	◆ | | |

Featuring some of the very showy species that can be unique to wetter prairies, this mix is best suited to a rich soil that holds water very well or a poorly drained area that has occasional pooling.

Seeding Rate: 8.52 lbs/acre, 142 seeds/sq ft

500 sq. ft.	$27.00	1/4 Acre	$354.00
1,000 sq. ft.	$43.00	1/2 Acre	$707.00
1/8 Acre	$177.00	1 Acre	$1,414.00

Wildflowers (50.39% by wt): Swamp Milkweed 4.79, New England Aster 0.64, Joe Pye Weed 0.48, Boneset 0.32, Bottle Gentian 1.27, Sneezeweed 1.47, Rose Mallow 3.19, Great St. John's Wort 0.37, Southern Blue Flag 3.19, Prairie Blazing Star 10.69, Great Blue Lobelia 1.83, Bunch Flower 0.80, Marsh Betony 1.10, Obedient Plant 1.83, Mountain Mint 0.64, Black-eyed Susan 2.93, Sweet Black-eyed Susan 0.32, Brown-eyed Susan 1.60, Compass Plant 1.47, Prairie Dock 1.60, Riddell's Goldenrod 0.80, Purple Meadow Rue 3.19, Blue Vervain 1.10, Common Ironweed 1.60, Golden Alexanders 3.19

Grasses (49.61% by wt): Big Bluestem 7.02, Fringed Brome 12.90, Bebb's Oval Sedge 3.19, Bristly Sedge 7.34, Porcupine Sedge 3.19, Common Fox Sedge 3.19, Brown Fox Sedge 1.60, Dark-green Bulrush 0.64, Wool Grass 0.32, Great Bulrush 1.60, Indian Grass 7.02, Cord Grass 1.60

Tallgrass Exposed Clay Subsoil

CATALOG NO.	P - S - W	W-WM-M-DM-D
TEC	○ ◒ ●	| | ◆ | ◆

Useful for construction sites or wherever clay soils are exposed, these tough, deep-rooted species can come to the rescue in any mesic to dry-mesic setting where lack of topsoil might challenge other plants.

Seeding Rate: 12.13 lbs/acre, 72 seeds/sq ft

500 sq. ft.	$20.00	1/4 Acre	$214.00
1,000 sq. ft.	$30.00	1/2 Acre	$428.00
1/8 Acre	$107.00	1 Acre	$855.00

Wildflowers (51.75% by wt): Anise Hyssop 1.12, Smooth Blue Aster 1.12, New England Aster 0.67, Canada Milk Vetch 0.45, White Wild Indigo 3.37, Partridge Pea 11.23, Purple Coneflower 6.18, Biennial Gaura 2.24, Early Sunflower 1.12, False Boneset 1.12, Round-headed Bush Clover 2.58, Wild Bergamot 1.12, Foxglove Beardtongue 1.12, White Prairie Clover 2.24, Purple Prairie Clover 3.37, Yellow Coneflower 1.55, Black-eyed Susan 2.80, Sweet Black-eyed Susan 0.52, Brown-eyed Susan 1.12, Compass Plant 2.24, Prairie Dock 1.35, Stiff Goldenrod 0.90, Lead Plant 2.24

Grasses (48.24% by wt): Big Bluestem 11.22, Canada Wild Rye 11.22, Virginia Wild Rye 7.85, Upland Wild Timothy 1.12, Switch Grass 1.12, Indian Grass 15.71

Sun | ○ Prairie: Full sun – 20% shade ◒ Savanna: 20% – 70% shade ● Woodland: 70% – 100% shade Soil | W Wet - WM Wet Mesic - M Mesic (Medium) - DM Dry Mesic - D Dry

1 Acre = 43,560 sq ft | 1/2 Acre = 21,780 sq ft | 1/4 Acre = 10,890 sq ft | 1/8 Acre = 5,445 sq ft

All mixes and prices are subject to availability of species

Mixed-Height Prairie

CATALOG NO.	P - S - W	W-WM-M-DM-D
MDM	○ ◒ ●	| | | | ◆

Short, medium, and tall wildflowers & grasses are included in this native seed mix for a site a little on the dry side. A colorful choice that's bound to please.

Seeding Rate: 12.79 lbs/acre, 84 seeds/sq ft

500 sq. ft.	$31.00	1/4 Acre	$445.00
1,000 sq. ft.	$51.00	1/2 Acre	$889.00
1/8 Acre	$223.00	1 Acre	$1,778.00

Wildflowers (47.14% by wt): Prairie Sage 0.49, Butterfly Weed 4.26, Sky Blue Aster 0.98, White Wild Indigo 2.13, Prairie Coreopsis 1.47, Pale Purple Coneflower 7.82, Rattlesnake Master 3.19, Stiff Gentian 0.21, Early Sunflower 0.98, Round-headed Bush Clover 2.13, Button Blazing Star 2.13, Wild Bergamot 0.73, Wild Quinine 3.19, Foxglove Beardtongue 1.22, Purple Prairie Clover 2.44, Yellow Coneflower 0.98, Black-eyed Susan 2.55, Sweet Black-eyed Susan 0.73, Brown-eyed Susan 0.98, Wild Petunia 1.47, Compass Plant 0.98, Stiff Goldenrod 0.64, Showy Goldenrod 0.59, Ohio Spiderwort 3.42, Hoary Vervain 1.47

Grasses (52.86% by wt): Big Bluestem 2.13, Little Bluestem 15.63, Side-Oats Grama 12.77, Prairie Brome 7.45, Plains Oval Sedge 5.31, Canada Wild Rye 5.32, Indian Grass 4.26

Shortgrass Inexpensive

CATALOG NO.	P - S - W	W-WM-M-DM-D
SGI	○ ◒ ●	| | | ◆ |

An inexpensive mix can still have diversity. July's heat will bring out the blooms of species such as the Prairie Coreopsis, Pale Purple Coneflower and Foxglove Beardtongue. This mix will do best on soils that are a little on the dry side.

Seeding Rate: 11.73 lbs/acre, 80 seeds/sq ft

500 sq. ft.	$18.00	1/4 Acre	$159.00
1,000 sq. ft.	$26.00	1/2 Acre	$318.00
1/8 Acre	$80.00	1 Acre	$636.00

Wildflowers (29.17% by wt): Nodding Onion 0.53, Butterfly Weed 1.07, Sky Blue Aster 0.46, Canada Milk Vetch 0.23, White Wild Indigo 1.60, Partridge Pea 5.32, Lance-leaf Coreopsis 2.32, Pale Purple Coneflower 3.47, Rattlesnake Master 2.32, Cream Gentian 0.70, Foxglove Beardtongue 1.06, White Prairie Clover 2.32, Purple Prairie Clover 2.32, Prairie Cinquefoil 1.07, Black-eyed Susan 2.89, Stiff Goldenrod 0.46, Hoary Vervain 0.93

Grasses (70.83% by wt): Little Bluestem 28.96, Side-Oats Grama 32.44, Prairie Brome 8.11, Upland Wild Timothy 1.33

Shortgrass Echinacea

CATALOG NO.	P - S - W	W-WM-M-DM-D
SGE	○ ◒ ●	| | | ◆

Our showiest short mix! A heavy concentration of dazzling flowers, particularly the Echinacea (Coneflower) species, native to various areas of the US. The Purple Coneflower is an icon of the North American Prairie. Having a wide range of Echinacea species in a mix like this will prolong bloom time.

Seeding Rate: 12.77 lbs/acre, 88 seeds/sq ft

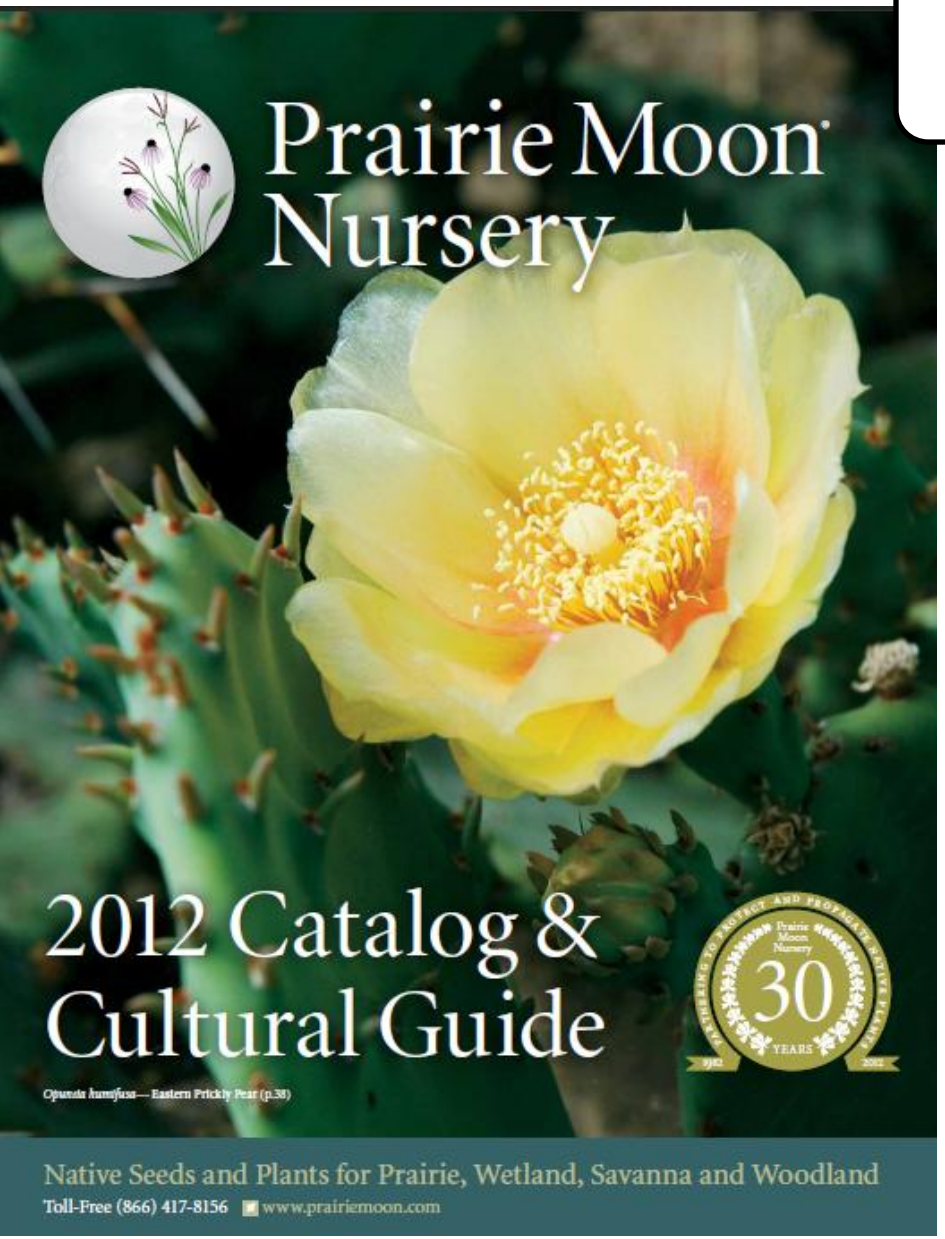
500 sq. ft.	$36.00	1/4 Acre	$547.00
1,000 sq. ft.	$61.00	1/2 Acre	$1,094.00
1/8 Acre	$274.00	1 Acre	$2,187.00

Wildflowers (56.61% by wt): Anise Hyssop 0.37, Nodding Onion 1.47, Butterfly Weed 3.91, Sky Blue Aster 0.98, Blue Wild Indigo 2.13, White Wild Indigo 2.13, Sm Yellow Wild Indigo 0.98, Harebell 0.21, Lance-leaf Coreopsis 1.96, Tall Larkspur 0.98, Narrow-leaved Coneflower 2.45, Pale Purple Coneflower 4.89, Bush's Coneflower 5.87, Purple Coneflower 2.13, Tennessee Coneflower 4.25, Rattlesnake Master 4.26, Cream Gentian 1.07, Stiff Gentian 1.07, Button Blazing Star 2.13, Wood Betony 1.07, Foxglove Beardtongue 0.64, Large-flowered Beardtongue 5.32, Purple Prairie Clover 1.96, Black-eyed Susan 1.96, Wild Petunia 1.96, Royal Catchfly 0.49

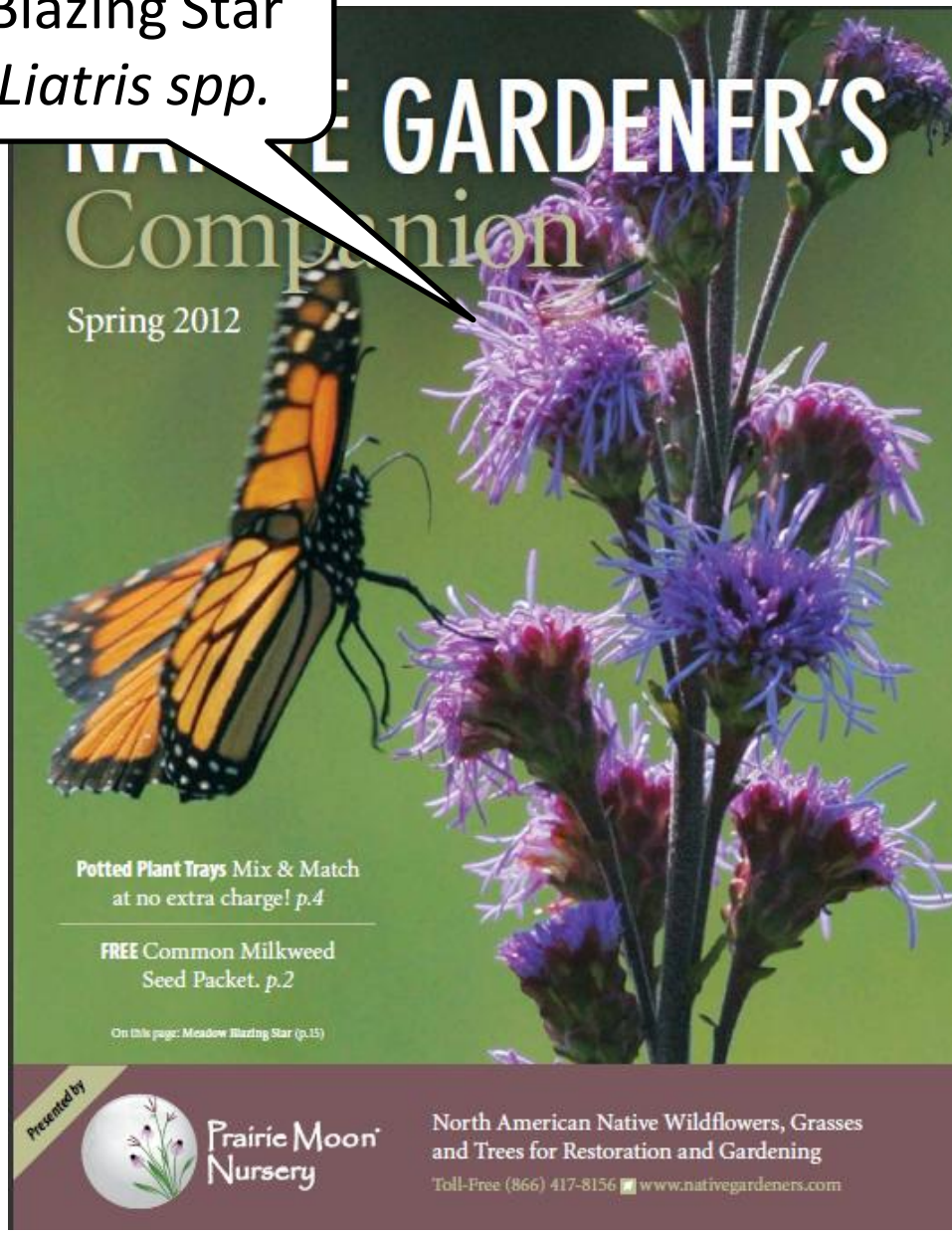
Grasses (43.39% by wt): Little Bluestem 17.05, Side-Oats Grama 17.05, Prairie Brome 7.46, Copper-shouldered Oval Sedge 1.47, Purple Love Grass 0.37

FREE CUSTOM SEED-MIX DESIGN For larger or unique plantings with budgets of at least $200. Call us about your project today: (866) 417-8156.

For all 22 Pre-Designed Seed-Mixes, see prairiemoon.com/seedmixes



Blazing Star
Liatris spp.



Cultural Guide Key

= Available in Potted Plant Trays – *$98 for 38 plants.* (p.6)
Sun | ○Prairie: Full sun – 20% shade ◒Savanna: 20 – 70% shade ●Woodland: 70 – 100% shade
Soil | **W** Wet - **WM** Wet Mesic - **M** Mesic (Medium) - **DM** Dry Mesic - **D** Dry
Comments | * landscaping ** landscaping but aggressive

Sun	Soil	Bloom												Wet				
P-S-W	W-WM-M-DM-D	A	M	J	J	A	S	O						Code	Germ Code	Color	Ht	Comments
○ ◒	💧 💧						M	J	J					OBL	C(60)	Grn	2'	Rhizom,*

Sun (Exposure)

P ○	Prairie	Plants normally grow in full sun. Should do well with up to 20% shade.
S ◒	Savanna	Partially shaded (20% to 70% shade). Sun reaches ground level at woodland edges or through openings between trees. Prairie species will often grow in larger openings, with shade-tolerant species growing under trees.
W ●	Woodland	70% to 100% shade.

Soil (Moisture) 💧

W	Wet	Soggy or marshy most of the year.
WM	Wet Mesic	Excessively wet in winter, spring and after heavy rain but often dries in summer.
M	Mesic	Medium. Water soaks in with no run-off.
DM	Dry Mesic	Well drained. Water is removed from soil readily but not rapidly.
D	Dry	Excessively drained.

Bloom (Time)

A	M	J	J	A	S	O
April	May	June	July	August	September	October

Wet(land) Codes:

National Wetland Categories for Region 3 (North Central) United States Fish & Wildlife Service:

OBL	Obligate Wetland	Occurs almost always in wetlands under natural conditions. *Estimated >99% probability*
FACW	Facultative Wetland	Usually occurs in wetlands, but occationally found in non-wetlands. *Estimated 67%–99% probability*
FAC	Facultative	Equally likely to occur in wetlands or nonwetlands. *Estimated 34%–66% probability*
FACU	Facultative Upland	Occasionally occurs in wetlands, but usually occurs in non-wetlands. *Estimated 1%–33% probability*
UPL	Upland	Occurs almost never in wetlands under natural conditions. *Estimated <1% probability*
+		A positive sign indicates a frequency toward the higher end of the category *(more frequently in wetlands)*
–		A negative sign indicates a frequency toward the lower end of the category *(less frequently found in wetlands)*

Germ Code (See Opposite Page)

(Bloom) Color

Blu	Blue	Org	Orange	Red	Red
Crm	Cream	Pnk	Pink	Wht	White
Grn	Green	Pur	Purple	Yel	Yellow

Height (Ht)

Approximate plant height is given with standard foot (') and inch (") abbreviations. Height is for mature full-grown plants in flower. Actual height will vary considerably due to competition, sun exposure, soil conditions, and weather. In young native plantings (less than 10 years) plant heights may be greater than in older plantings when competition reduces height.

Comments

Annual	Completes its life cycle during one season.
Biennial	Grows vegetatively during the first year, completes its life cycle during the second.
Calcareous	Needs alkaline soil with a pH of 7 to 8.
Acidic	Needs acid soil with a pH of 4 to 6.
Hemiparasitic	Requires a "host" plant species.
Sand	Species which usually require very sandy soils.
Cool	Actively grows during the spring and fall when soil temperatures are cool.
Warm	Actively grows during the summer when soil temperatures are warm.
Aggressive	May not be suited for small landscape plantings.
Rhizomatous	Fast-spreading root system.
*	Highly recommended for home landscaping.
**	Recommended for home landscaping, but be careful of those species labeled aggressive or rhizomatous.
New!	New in seed or plant for 2012.
EZ	Attention, beginners: Easy to grow.
📷 24	Quick reference for photos
💧	Available in Potted Plant Trays – *$98 for 38 plants.* (p.6)

Germination Instructions

The seeds of many native plants have built-in dormancy mechanisms which protect them from germinating before killing frosts or in times of drought. In the wild, seeds will lie dormant until the proper conditions for growth occur. But in cultivation, the successful gardener must become familiar with several simple pre-sowing seed treatment methods which will unlock the dormancy mechanism and stimulate quicker, more consistent germination.

We have developed the following seed germination codes to help you successfully grow the native plant seed sold in this catalog. These seed treatment suggestions have been compiled from available literature, our own experience, and feedback from other growers and customers.

These are only suggestions and not the definitive source of germination information. If your experience reveals successful methods other than these, please let us know.

Until you are ready to plant or apply pre-sowing treatment, seed should be stored in either a sealed (airtight) container under refrigeration (33–40°F) or in an open container in a cool, dry place. Avoid rapid or frequent temperature changes and protect against rodents.

Sow seeds shallowly and keep seedlings carefully weeded. Periodic watering is helpful to establish seedlings. If seed does not germinate the first year, don't give up: germination may occur the second year or even later.

Germ(ination) Codes:

A **Seed should germinate upon sowing in a warm location.** No pretreatment is necessary other than cold, dry storage *(also called dry cold stratification)*.

Seed purchased from Prairie Moon has been stored under these conditions.

B **Hot water treatment**

Bring water to a boil. Remove from heat, pour over seeds and soak in a warm place for 24 hours before planting.

C **(Number of stratifying days):** Seeds germinate after a period of cold, moist stratification

Please note: You do not need to stratify if you are fall planting or using a seed drill. Also, do not use this method if you are planting a seed mix and cannot keep the site moist. Mix seeds with equal amounts or more of damp sand, vermiculite, or other sterile media (moist—but not so wet that water will squeeze out of a handful). We use silica sand (purchased at a building supply center) for small quantities. For large quantities we use coarse grade vermiculite. Place mixture in a labeled, sealed plastic bag and store in a refrigerator (33–38°F). Stratify for the # days indicated in parentheses. If two months (C(60)) of this cold storage before planting is normally required to break the dormancy of these seeds, one month may work for many species if time is a constraint. Some seeds may sprout in the storage bag if moist-stratified too long. If sprouting occurs, plant immediately. Another method of breaking dormancy for species requiring moist stratification is to sow seeds outdoors in the fall so they may overwinter.

D **Seeds are very small or need light to naturally break dormancy and germinate**

Seeds requiring this treatment should be surface sown. No soil cover or just a dusting of soil should be applied. If grown in outdoor garden beds, sow stratified (if required) seed on level surface. Cover with a single layer of burlap or cotton sheet. Remove cover after germination. Do not let soil dry out until seedlings are established. Shading with a window screen set 12" above soil the first year will help prevent drying. If sowing seeds in containers, water from the bottom as necessary.

E **Seeds need a warm, moist period followed by a cold, moist period**

Seeds need a warm, moist period followed by a cold, moist period: Mix seeds with sterile media. Place mixture in a sealed plastic bag in a warm place (about 80°F) for 60-90 days. Then place in the refrigerator for another 60-90 days before sowing. Another method is to sow outdoors and allow one full year for germination.

F **Seeds need a cold, moist period followed by a warm, moist period followed by a 2nd cold, moist period**

Seeds germinate after alternating cold moist, warm moist, cold moist stratification treatments. Start by following instructions for code C for 60-90 days, then store in warm (about 80°F) place for 60-90 days followed by a 2nd cold, moist period in the refrigerator. Another method is to sow outdoors and allow 2 years or longer to germinate.

G **Seeds germinate most successfully in cool soil**

Sow seeds in late fall (after hard frost) or early spring.

H **Seeds need scarification**

For spring plantings, Prairie Moon scarifies these seeds before shipping. Seeds for fall or frost plantings are not scarified, to prevent premature germination and winter kill. Please let us know if scarification is needed in fall for greenhouse production or other reasons. Scarify by rubbing seed between sheets of medium-grit sandpaper. Lightly abrade the seed coat without crushing seeds. Scarify before stratifying (Code C), if needed.

I **Legume, Rhizobium inoculum**

Prairie Moon includes species-specific inoculum with legume seed free of charge when available *(See p.15 for information)*. Inoculum aids in the fixation of atmospheric nitrogen and improves the long-term health of native plant communities. Inoculum will keep refrigerated for approximately 1 year. Add inoculant to dampened seed and mix thoroughly at time of stratification (code C) or if direct seeding, as close to planting time as possible. Protect inoculated seed from sunlight or drying winds: cover as quickly as possible with a light coating of soil or mulch. Inoculum can also be mixed with potting soil for planting in pots or flats, or directly into transplanting hole.

J **We remove the hulls from these legume seeds**

This gives more seeds per pound and greatly improves germination. If you have unhulled seed from another source, treat as in Code H.

K **Hemiparasitic species which needs a host plant**

Good hosts for many parasitic species include low growing grasses and sedges—Hairy or Blue Grama, Little Bluestem, June Grass, Common Oak Sedge. With a knife, make a 2" deep cut at the base of the host plant. Sow seeds in the cut, making sure it is not more than 1/8" deep. If the host is transplanted at sowing time, the cut is not needed: damaged roots will be available for attachment by the hemiparasite. You may also try sowing seeds of the host and parasitic species together. To add hemiparasitic species to existing sites, scatter seed on soil surface (rake in if seed is large) in late fall.

L **Plant fresh seed or keep moist**

Refrigerate until planting or starting other treatment.

M **Best planted outdoors in the fall**

S **Fern spore sowing**

Sow fern spores on sterile peat under glass in indirect light. Water with distilled water. Refer to other reference material on growing ferns. Or, direct sow spores on soil surface.

? **Not sure**

Your input would be of interest to us.

Native Groundcovers

For reducing landscape maintenance and preventing erosion in difficult areas

Qualities of low maintenance plants:

- Compact, clump-forming
  - for use in small-scale landscapes
- Spreading plants
  - for use in large-scale landscapes
- Long lived
- Four season appeal
- Eliminate weeds
- Ability to tolerate a wide range of soil and moisture conditions

NATIVE PLANT SCHOOL

SHAW NATURE RESERVE

a division of the MISSOURI BOTANICAL GARDEN

Photo by Ronda Headland, MDC

Photo by Ronda Headland, MDC

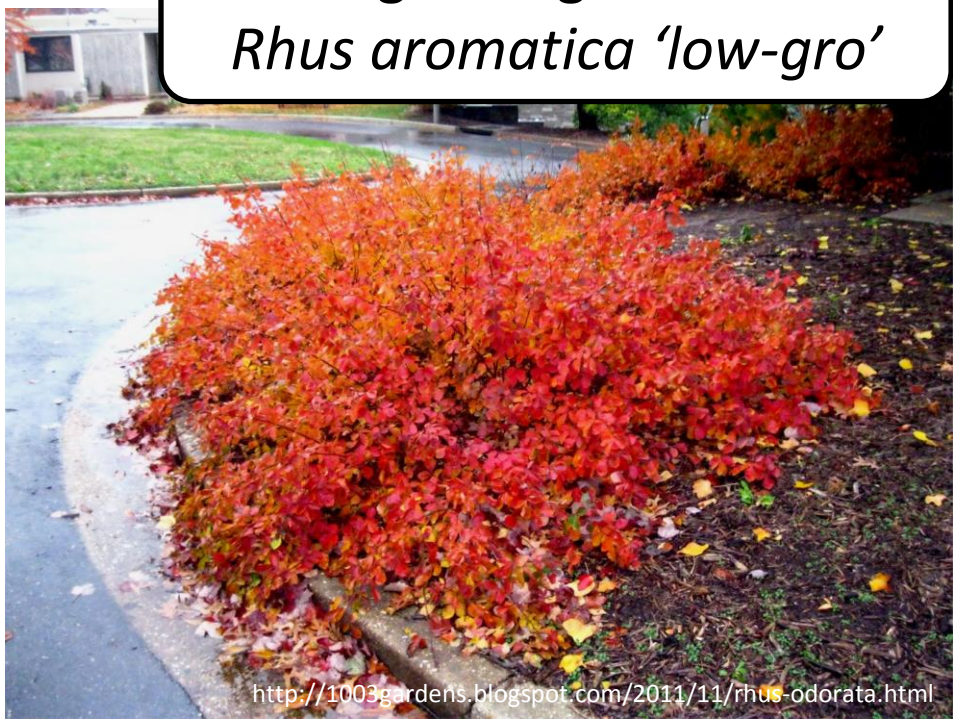
Native Plants for Slopes and Erosion Control

If you examine each plant species, you'll find **common characteristics.**

- **Deep, fibrous roots** that solidly anchor each plant and help it withstand droughty conditions. By contrast, plants with sparse, shallow roots—particularly those with heavy foliage—can be top-heavy and easily uprooted with heavy wind or runoff.
- **Tough, low-maintenance plants** that don't need staking, fertilizing or insect and disease-control. Resilient, easy care native plants are the perfect choice.
- **Naturalizing is easy** for plants that spread by underground suckering. These species, like sumac, sweetspire, forsythia and chokeberry can quickly form thickets that protect your slope and provide desirable wildlife habitat. Similarly, some plants regenerate easily by self-sowing.

FORREST KEELING NURSERY

'Low-gro Fragrant Sumac
Rhus aromatica 'low-gro'



http://1003gardens.blogspot.com/2011/11/rhus-odorata.html

Courtesy of Justin Evertson, Nebraska Statewide Arboretum

Little Bluestem
Schizachyrium scoparium

Photo by Ronda Headland, MDC